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In the Claims:

Please amend claims 1 and 3-4 and add new claims 21-23 as shown in the attached marked and clean pages pursuant to 37 C.F.R. 1.121(b).

REMARKS

The office action states that the application file does not contain the microfiche appendix that is referenced at page 1 of the specification. The applicant has enclosed herewith copies of papers showing that the microfiche appendix was properly filed and submitted with the application when the application was filed. The applicant has also enclosed herewith a copy of the applicant's own file copy of the microfiche appendix as originally submitted. No new matter has been added.

As suggested in the office action, the 111 page Appendix: NomTokens (which was submitted with the application when the application was filed, and which is referenced and incorporated at page 14, line 6 of the original specification) has been moved and inserted prior to the claims in the specification. No new matter has been added.

In one aspect of the invention, a method for use in deriving chemical structural information includes acquiring a chemical name lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, and parsing the chemical name into at least first and second fragments. The first and second fragments had non-contiguous positions in the chemical name. The method also includes applying computer executable logic to the first and second fragments. The computer executable logic determines, based at least in part on the positions of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments.

In another aspect of the invention, a method for use in deriving chemical structural information includes deriving, based on a processing rule, first and second name fragments from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name. The first and

second fragments have non-contiguous positions in the chemical name. The method also includes determining type and position information for the first and second name fragments. The position information is descriptive of the positions of the first and second fragments within the chemical name. The method also includes determining, based on a connectivity table and the first and second name fragments and the type and position information, at least a portion of a chemically accurate computer readable diagrammatic representation for the chemical name.

Claims 6 and 17 have been rejected under 35 U.S.C. 112 only. The other previously pending claims (claims 1-5, 7-16, 18-20) have been rejected under 35 U.S.C. 112 and under 35 U.S.C. 102. New claims 21-23 have been added.

Claims 1-20 have been rejected under 35 U.S.C. 112, first paragraph, as containing new matter. The action states that there is no apparent basis in the specification for any of claims 5-20. The applicant respectfully disagrees. As indicated below, all of claims 5-20 are supported in the specification at least where indicated.

Claim 5 recites making a change to the chemical name to facilitate subsequent analysis of the chemical name, which is supported in the specification at least at page 5 line 11 et seq and at page 13 lines 11-13 and the description leading up thereto.

Claim 6 recites detecting that the chemical name has an inverted form and changing the chemical name to an uninverted form, which is supported in the specification at least at page 6, lines 3-15.

Claim 7 recites inserting a delimiter into the chemical name, which is supported in the specification at least at page 6, lines 16-21, and page 13, lines 3-7.

Claim 8 recites comparing at least one of the first and second fragments to at least a portion of the contents of a set of chemical characteristics data, which is supported in the specification at least at page 14 et seq.

Claim 9 recites associating at least one of the first and second fragments with a data object belonging to the set of chemical characteristics data, which is supported in the specification at least at least at page 14 et seq.

Claims 10-13 recite the data object including a connection table, a locant map, an attach-in map, or an attach-out map, which are supported in the specification at least at page 14 et seq.

Claim 14 recites selecting the portion of the contents as being representative of at least one of the first and second fragments, and rejecting the portion of the contents in favor of another portion of the contents, which is supported in the specification at least at page 20 et seq.

Claim 15 recites deriving at least one of the first and second chemically accurate computer readable diagrammatic representations from information belonging to the data object, which is supported in the specification at least at page 24 and at page 28.

Claim 16 recites computer software comprising instructions for use in a computer system to help cause the computer system to make a change to the chemical name to facilitate subsequent analysis of the chemical name, which is supported in the specification at least where indicated above in connection with claim 5, and at page 28 et seq.

Claim 17 recites computer software comprising instructions for use in a computer system to help cause the computer system to detect that the chemical name has an inverted form, and change the chemical name to an uninverted form, which is supported in the specification at least where indicated above in connection with claim 6, and at page 28 et seq.

Claim 18 recites computer software comprising instructions for use in a computer system to help cause the computer system to insert a delimiter into the chemical name, which is supported in the specification at least where indicated above in connection with claim 7, and at page 28 et seq.

Claim 19 recites computer software comprising instructions for use in a computer system to help cause the computer system to compare at least one of the first and second fragments to at

least a portion of the contents of a set of chemical characteristics data, which is supported in the specification at least where indicated above in connection with claim 8, and at page 28 et seq.

Claim 20 recites computer software comprising instructions for use in a computer system to help cause the computer system to associate at least one of the first and second fragments with a data object belonging to the set of chemical characteristics data, which is supported in the specification at least where indicated above in connection with claim 9, and at page 28 et seq.

The action also states that, with respect to claims 1 and 3-4, there is no apparent basis for the limitations "acquiring a chemical name lacking an association with a chemically accurate readable diagrammatic representation of a substance identified by the chemical name" and "applying computer executable logic to the first and second fragments", and that a basis for "acquiror" in claim 3 has not been provided. The applicant respectfully disagrees. As indicated below, these limitations and "acquiror" are supported in the specification at least where indicated.

The limitation "acquiring a chemical name lacking an association with a chemically accurate readable diagrammatic representation of a substance identified by the chemical name" is supported in the specification at least at Fig. 2, which plainly shows a chemical name 12 lacking an association with a chemically accurate readable diagrammatic representation of a substance identified by the chemical name, and by at least pages 4-5 including the following text on page 4, line 17 through page 5, line 1: "A chemical name 12 is supplied via one or more input systems such as end-user keyboard input 14, file-based input 16, or World-Wide Web query input 18. The chemical name is received by computer-based internal processing 20, which derives structural output in one or more forms such as a diagram 22 displayed on paper or on a screen".

The limitation "applying computer executable logic to the first and second fragments" is supported in the specification by at least on page 24 at lines 2-15, including the following text: "The consolidated list of nomTokens is examined .... [A] representation of the structure (e.g., an image of the structure) is derived from the connection table and is presented to the user (step 1100). (See, e.g., the above-cited simultaneously filed application.)", and/or on page 28 at lines 12-21: "All or a portion of the procedures described above may be implemented in hardware or

software, or a combination of both. In at least some cases, it is advantageous if the technique is implemented in computer programs executing on one or more programmable computers, such as a personal computer running or able to run an operating system such as UNIX, Linux, Microsoft Windows 95, 98, 2000, or NT, or MacOS, that each include a processor, a storage medium readable by the processor (including volatile and non-volatile memory and/or storage elements), at least one input device such as a keyboard, and at least one output device. Program code is applied to data entered using the input device to perform the technique described above and to generate output information." It is well known to those of ordinary skill in the art that a computer program executing on a programmable computer such as a personal computer is an example of computer executable logic as recited in the claim language.

The term "acquiror" is supported in the specification by at least the following text on page 4 at lines 17-20: "A chemical name 12 is supplied via one or more input systems such as end-user keyboard input 14, file-based input 16, or World-Wide Web query input 18. The chemical name is received by computer-based internal processing 20". It is well known to those of ordinary skill in the art that receive-capable computer-based internal processing is an example of an acquiror.

The action states that the "non-contiguous" limitations are still deemed to constitute new matter. The applicant respectfully disagrees, and has amended the independent claims to make more clear that the first and second fragments had non-contiguous positions in the chemical name, which is supported by example in the specification at least at page 21, including at lines 14-16, as well as at page 17, including at lines 10-20, and in a specific example described at page 24, line 19 et seq, which describe non-adjacent and adjacent fragments clearly with reference to their positions in the chemical name.

Claims 1-20 have been rejected under 35 U.S.C. 112, first paragraph, as lacking enablement. The applicant respectfully disagrees, and has a three-part response explained below.

First of all, the application as originally filed included not only the detailed description section, but also the 111 page Appendix: NomTokens and the 382 page source code appendix. The application also incorporated by reference U.S. Provisional Patent Application Serial No.

60/119,930 filed February 12, 1999, and United States Patent Application entitled ENHANCING STRUCTURE DIAGRAM GENERATION. It is clear as a general matter that this material constitutes an abundance of information that would enable one skilled in the art to make and/or use the invention. Certainly, the source code appendix represents a substantial contribution toward an enabling disclosure for one skilled in the art to make and/or use the invention.

Secondly, according to MPEP 2164.08, "the scope of enablement must only bear a 'reasonable correlation' to the scope of the claims. See, e.g., In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970)", and the specification easily meets this standard. The claims recite elements for use in deriving chemical structural information, and the specification easily correlates to those elements by teaching at least one example implementation of a computer software and data processing system, using example data (e.g., disclosed in detailed description and/or the 111 page Appendix: NomTokens) and example techniques (e.g., disclosed in the detailed description and/or the 382 page source code appendix), that is used in deriving chemical structural information. In addition, MPEP 2164.08 specifies a 2-staged inquiry for "determin[ing] the propriety of a rejection based upon the scope of a claim relative to the scope of the enablement":

> [D]etermin[ing] how broad the claim is with respect to the disclosure. The entire claim must be considered.
>
> [D]etermin[ing] if one skilled in the art is enabled to make and use the entire scope of the claimed invention without undue experimentation.

With respect to the breadth determination stage, the detail and specificity of the applicant's disclosure can only help one of ordinary skill in the art to make and/or use the invention. As further stated in MPEP 2164.08, "[h]ow a teaching is set forth, by specific example or broad terminology, is not important. In re Marzocchi, 439 F.2d 220, 223-24 169 USPQ 367, 370 (CCPA 1971)." As noted above, the application lays out at least one detailed example description of the invention, including support for each of the elements of the claims. Thus, since the at least one detailed example description is provided and In re Marzocchi makes clear that it is unimportant to set forth the teaching by broad terminology, the claim breadth is appropriate regardless of whether or not the specification provides guidance on general parsing strategies,

general computer executable logic strategies, or general changes that would facilitate subsequent analysis, as proposed in the office action. Furthermore, regardless of whether or not the specification provides such guidance, one of ordinary skill in the art can reasonably be expected to already have sufficient knowledge of general topics such as general parsing strategies and general computer executable logic strategies to make and/or use the invention in view of the application's disclosure.

With respect to the undue experimentation determination, as stated above, the application provides an abundance of information for making and/or using the invention. The substantial nature of the disclosure minimizes or greatly reduces the need for any experimentation by one skilled in the art, and also greatly reduces the likelihood that any experimentation that would be carried out would be "undue" for one skilled in the art.

Lastly with respect to enablement, in regard to the characterizations on pp. 4-5 of the office action pertaining to the specification's disclosure, the applicant has added new claims 21-23. The applicant submits that at least these claims are clearly patentable in view of the office action's characterizations.

Accordingly, the rejections under 35 U.S.C. 112, first paragraph, should be withdrawn.

Claims 1-5, 7-16, and 18-20 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,345,516 to Boyer et al ("Boyer"). However, Boyer does not disclose acquiring a **chemical name** lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, as required by the claims, and Boyer does not disclose parsing the chemical name into at least first and second fragments, the first and second fragments having had **non-contiguous positions** in the chemical name, and determining, based at least in part on the **positions** of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments as required by the claims.

Boyer discloses analyzing an existing chemical structural diagram that may include chemical formulas (also referred to as "chemical strings" in Boyer). This is entirely different from acquiring a chemical name that **lacks** an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, as required by the claims. Although some chemical names are shown in Boyer's figures (e.g., "methyl acetylsalicylate" in Boyer Fig. 3), they are clearly not the subject of the derivation analysis disclosed in Boyer and they are clearly already associated with existing chemical structural diagrams. With respect to analysis, see Boyer examples 1 and 2, both of which start off with chemical formulas, not chemical names (col. 26, line 55, and col. 31, line 1).

Furthermore, the analysis disclosed in Boyer does not include determining chemically accurate computer readable diagrammatic representations based on non-contiguous positions of fragments in a chemical name as required by the claims. At most, Boyer relies on chemical formulas that are already positioned in an existing chemical structural diagram, which is entirely different from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation as required by the claims.

The applicant submits that the application is in condition for allowance, which action is requested. In the interest of expediting prosecution, in the event there are questions concerning the specification or claims, or concerning any of the explanations stated above, the applicant encourages the examiner to contact the undersigned directly at the telephone number given below.

The Commissioner is hereby authorized to charge any fee deficiency, or credit any overpayment to our Deposit Account No. 08-0219.

Respectfully submitted,

Dated: August 13, 2002

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Replacement Pages for Claims 1-23

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1. A method for use in deriving chemical structural information, comprising:

acquiring a chemical name lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name;

parsing the chemical name into at least first and second fragments, the first and second fragments having had [being] non-contiguous positions in the chemical name; and

applying computer executable logic to the first and second fragments, the computer executable logic determining, based at least in part on the positions of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments.

2. The method of claim 1, further comprising:

identifying, among a preselected set of text strings, respective first and second text strings that correspond to the first and second fragments; and

basing the determination of the first and second diagrammatic representations at least in part on conditions associated with the first and second text strings.

3. A system for use in deriving chemical structural information, comprising:

an acquiror acquiring a chemical name lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name;

a parser parsing the chemical name into at least first and second fragments, the first and second fragments having had [being] non-contiguous positions in the chemical name; and

computer executable logic determining, based at least in part on the positions of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments.

4. Computer software, residing on a computer-readable storage medium, comprising a set of instructions for use in a computer system to help cause the computer system to derive chemical structural information, the instructions causing the system to:

acquire a chemical name lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name;

parse the chemical name into at least first and second fragments, the first and second fragments having had [being] non-contiguous positions in the chemical name; and

apply computer executable logic to the first and second fragments, the computer executable logic determining, based at least in part on the positions of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments.

5. The method of claim 1, further comprising:

making a change to the chemical name to facilitate subsequent analysis of the chemical name.

6. The method of claim 1, further comprising:

detecting that the chemical name has an inverted form; and

changing the chemical name to an uninverted form.

7. The method of claim 1, further comprising:

inserting a delimiter into the chemical name.

8. The method of claim 1, further comprising:

comparing at least one of the first and second fragments to at least a portion of the contents of a set of chemical characteristics data.

9. The method of claim 8, further comprising:

associating at least one of the first and second fragments with a data object belonging to the set of chemical characteristics data.

10. The method of claim 9, wherein the data object includes a connection table.

11. The method of claim 9, wherein the data object includes a locant map.

12. The method of claim 9, wherein the data object includes an attach-in map.

13. The method of claim 9, wherein the data object includes an attach-out map.

14. The method of claim 8, further comprising:

selecting the portion of the contents as being representative of at least one of the first and second fragments; and

rejecting the portion of the contents in favor of another portion of the contents.

15. The method of claim 9, further comprising:

deriving at least one of the first and second chemically accurate computer readable diagrammatic representations from information belonging to the data object.

16. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

make a change to the chemical name to facilitate subsequent analysis of the chemical name.

17. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

detect that the chemical name has an inverted form; and

change the chemical name to an uninverted form.

18. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

insert a delimiter into the chemical name.

19. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

compare at least one of the first and second fragments to at least a portion of the contents of a set of chemical characteristics data.

20. The computer software of claim 19, further comprising instructions for use in a computer system to help cause the computer system to:

associate at least one of the first and second fragments with a data object belonging to the set of chemical characteristics data.

21. A method for use in deriving chemical structural information, comprising:

based on a processing rule, deriving first and second name fragments from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, the first and second fragments having non-contiguous positions in the chemical name;

determining type and position information for the first and second name fragments, the position information being descriptive of the positions of the first and second fragments within the chemical name;

based on a connectivity table and the first and second name fragments and the type and position information, determining at least a portion of a chemically accurate computer readable diagrammatic representation for the chemical name.

22. A system for use in deriving chemical structural information, comprising:

a derivor deriving, based on a processing rule, first and second name fragments from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, the first and second fragments having non-contiguous positions in the chemical name;

a determiner determining type and position information for the first and second name fragments, the position information being descriptive of the positions of the first and second fragments within the chemical name;

a diagram determiner determining, based on a connectivity table and the first and second name fragments and the type and position information, at least a portion of a chemically accurate computer readable diagrammatic representation for the chemical name.

23. Computer software, residing on a computer-readable storage medium, comprising a set of instructions for use in a computer system to help cause the computer system to derive chemical structural information, the instructions causing the system to:

based on a processing rule, derive first and second name fragments from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, the first and second fragments having non-contiguous positions in the chemical name;

determine type and position information for the first and second name fragments, the position information being descriptive of the positions of the first and second fragments within the chemical name;

based on a connectivity table and the first and second name fragments and the type and position information, determine at least a portion of a chemically accurate computer readable diagrammatic representation for the chemical name.

Replacement Pages for Claims 1-23

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1. A method for use in deriving chemical structural information, comprising:

acquiring a chemical name lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name;

parsing the chemical name into at least first and second fragments, the first and second fragments having had non-contiguous positions in the chemical name; and

applying computer executable logic to the first and second fragments, the computer executable logic determining, based at least in part on the positions of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments.

2. The method of claim 1, further comprising:

identifying, among a preselected set of text strings, respective first and second text strings that correspond to the first and second fragments; and

basing the determination of the first and second diagrammatic representations at least in part on conditions associated with the first and second text strings.

3. A system for use in deriving chemical structural information, comprising:

an acquiror acquiring a chemical name lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name;

a parser parsing the chemical name into at least first and second fragments, the first and second fragments having had non-contiguous positions in the chemical name; and

computer executable logic determining, based at least in part on the positions of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments.

4. Computer software, residing on a computer-readable storage medium, comprising a set of instructions for use in a computer system to help cause the computer system to derive chemical structural information, the instructions causing the system to:

acquire a chemical name lacking an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name;

parse the chemical name into at least first and second fragments, the first and second fragments having had non-contiguous positions in the chemical name; and

apply computer executable logic to the first and second fragments, the computer executable logic determining, based at least in part on the positions of the first and second fragments within the chemical name, respective first and second chemically accurate computer readable diagrammatic representations of the first and second fragments.

5. The method of claim 1, further comprising:

making a change to the chemical name to facilitate subsequent analysis of the chemical name.

6. The method of claim 1, further comprising:

detecting that the chemical name has an inverted form; and

changing the chemical name to an uninverted form.

7. The method of claim 1, further comprising:

inserting a delimiter into the chemical name.

8. The method of claim 1, further comprising:

comparing at least one of the first and second fragments to at least a portion of the contents of a set of chemical characteristics data.

9. The method of claim 8, further comprising:

associating at least one of the first and second fragments with a data object belonging to the set of chemical characteristics data.

10. The method of claim 9, wherein the data object includes a connection table.

11. The method of claim 9, wherein the data object includes a locant map.

12. The method of claim 9, wherein the data object includes an attach-in map.

13. The method of claim 9, wherein the data object includes an attach-out map.

14. The method of claim 8, further comprising:

selecting the portion of the contents as being representative of at least one of the first and second fragments; and

rejecting the portion of the contents in favor of another portion of the contents.

15. The method of claim 9, further comprising:

deriving at least one of the first and second chemically accurate computer readable diagrammatic representations from information belonging to the data object.

16. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

make a change to the chemical name to facilitate subsequent analysis of the chemical name.

17. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

detect that the chemical name has an inverted form; and

change the chemical name to an uninverted form.

18. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

insert a delimiter into the chemical name.

19. The computer software of claim 4, further comprising instructions for use in a computer system to help cause the computer system to:

compare at least one of the first and second fragments to at least a portion of the contents of a set of chemical characteristics data.

20. The computer software of claim 19, further comprising instructions for use in a computer system to help cause the computer system to:

associate at least one of the first and second fragments with a data object belonging to the set of chemical characteristics data.

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21. A method for use in deriving chemical structural information, comprising:

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based on a processing rule, deriving first and second name fragments from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, the first and second fragments having non-contiguous positions in the chemical name;

determining type and position information for the first and second name fragments, the position information being descriptive of the positions of the first and second fragments within the chemical name;

based on a connectivity table and the first and second name fragments and the type and position information, determining at least a portion of a chemically accurate computer readable diagrammatic representation for the chemical name.

22. A system for use in deriving chemical structural information, comprising:

a derivor deriving, based on a processing rule, first and second name fragments from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, the first and second fragments having non-contiguous positions in the chemical name;

a determiner determining type and position information for the first and second name fragments, the position information being descriptive of the positions of the first and second fragments within the chemical name;

a diagram determiner determining, based on a connectivity table and the first and second name fragments and the type and position information, at least a portion of a chemically accurate computer readable diagrammatic representation for the chemical name.

23. Computer software, residing on a computer-readable storage medium, comprising a set of instructions for use in a computer system to help cause the computer system to derive chemical structural information, the instructions causing the system to:

based on a processing rule, derive first and second name fragments from a chemical name that lacks an association with a chemically accurate computer readable diagrammatic representation of a substance identified by the chemical name, the first and second fragments having non-contiguous positions in the chemical name;

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determine type and position information for the first and second name fragments, the position information being descriptive of the positions of the first and second fragments within the chemical name;

based on a connectivity table and the first and second name fragments and the type and position information, determine at least a portion of a chemically accurate computer readable diagrammatic representation for the chemical name.

Replacement Text for Page 4, Line 16 of the Specification

(MARKED TO SHOW CHANGES)

--This application is filed simultaneously with a United States Patent Application entitled ENHANCING STRUCTURE DIAGRAM GENERATION, serial no. [_____] 09/502,133, which is incorporated herein.--

Replacement Text for Page 4, Line 16 of the Specification
(CLEAN FORM)

--This application is filed simultaneously with a United States Patent Application entitled ENHANCING STRUCTURE DIAGRAM GENERATION, serial no. 09/502,133, which is incorporated herein.--